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Better Nutrition in Connecticut

OPPORTUNITIES FOR EXPANDING FRESH PRODUCE PRODUCTION AND CONSUMPTION

Stephens, Fleming, Gacoin, and Bravo-Ureta

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SUMMARY

The relationship between the consumption of nutritious foods and profitable production of fresh fruits and vegetables in Connecticut was examined. A nutritious and healthful diet, emphasizing Connecticut-grown fresh fruits and vegetables, was proposed through a series of seasonal menus. Twenty-one vegetables and ten fruits were featured.

Current annual consumption of these selected items is about 225 pounds per person. Connecticut farmers could produce 20 to 100 percent of the annual consumption. Connecticut farmers now produce only about 40 percent of the fresh fruits and vegetables consumed in season. Producing the seasonal portion of this annual consumption would expand the area devoted to fresh produce in Connecticut by about 11 thousand acres.

If all Connecticut people adopted the proposed menu, however, seasonal consumption of the selected produce would expand nearly four times. Growing these crops in Connecticut could increase the acreage to 139 thousand, or nine times the 1982 acreage.

During 1985-87 the profitability or net return per acre for a farmer growing the produce ranged between $127 and $9324 per acre. Net income from the 1982 crop area was $14.1 million. If all the current seasonal demand were grown on Connecticut farms, net income could increase about $13 million. Adoption of the proposed diet by the entire Connecticut population, however, could increase net income $103 million. Profitability, expansion of production and additional net income identify current and potential strategic opportunities for growing fresh produce.

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Better Nutrition in Connecticut

Opportunities for Expanding Fresh Produce Production and Consumption

STEPHENS, FLEMING, GACOIN, AND BRAVO-URETA

The economic success of food production and the availability of nutritious food are closely connected. Concerns about diet and health and changes in lifestyles have altered the demand for food and affected the markets for farmers. Farmers can recognize trends in demand, take advantage of opportunities for changed markets and promote locally-grown nutritious food. Consumers can benefit from locally-grown nutritious food. Working together farmers, nutritionists, food suppliers, and merchants can ensure the availability of appropriate foods for health and for profit (ECOP 1986).

For over a century, nutritionists have encouraged Americans to eat a healthful diet. The U.S. Department of Agriculture has developed and published dietary guidelines (Behlen and Cronin 1985). In 1977, the U.S. Senate Select Committee on Nutrition and Human Needs published the *Dietary Goals for the United States*, recognizing the detrimental effects of too much fat, sugar and salt. The goals outlined eating patterns that could reduce the risks of high blood pressure, heart disease, diabetes, and cancer (U.S. Senate 1977). Since 1977 the Dietary Goals have been modified as recognition and understanding of the diet and health relationship grew (USDHEW 1979, NAS 1982, Behlen and Cronin 1985, USDA 1985, USDHHS 1986).

Recent evidence indicates that American food consumption is moving closer to dietary recommendations (Bunch 1986, 1987, Harris 1986, Peterkin and Rizek 1986). For example, in the mid-1980s Americans ate less fat, more carbohydrates and more fruits and vegetables than during the mid-1970s. From 1965 to 1985 per capita consumption of fresh vegetables increased a third and of fresh fruit a fifth (USDA 1987). Although the pattern of American food consumption is still short of current dietary recommendations, awareness of the diet and health relationship has grown. We have the opportunity to improve health and nutrition by providing specific suggestions for applying the principles of nutritional adequacy, variety in food choice, and moderation. Encouraging increased consumption of fruits and vegetables continues the present trend and is consistent with all dietary recommendations.

During 1985-87, the Commission on Connecticut's Future examined the opportunities and constraints in food facing our people as we approach the year 2000. With a process described as "Foresight" (Fleming 1986), the Commission, working with farmers, distributors, researchers, nutritionists, and consumers, developed the following goal:

> "To assure the health and well-being of the citizens of Connecticut by improving the diets of our people and protecting the safety of our food; by promoting the prosperity of our farms and expanding the profits of our food and agricultural industry while preserving the landscape of our state."

Achieving this goal would satisfy a consumer demand for well-being as well as rekindle Connecticut's vital farming.

This report links nutrition and health to crop diversification and the preservation of profitable and successful farms. Evoked by the Commission on Connecticut's Future and written by staff of

The Connecticut Agricultural Experiment Station, New Haven, the Cooperative Extension Service, Storrs, and The University of Connecticut, Storrs, the report is published by The Station.

OBJECTIVES

The objectives of this study are to: 1) Propose nutritionally balanced menus that follow current dietary recommendations for health and incorporate fresh, Connecticut-grown fruits and vegetables; 2) Estimate fresh produce consumption in Connecticut with current and proposed diets; 3) Determine opportunities for growing fresh produce on Connecticut farms under current and proposed diets; 4) Estimate net income of farmers growing fresh produce in Connecticut for current and proposed diets; and 5) Discover opportunities for growing fresh produce profitably in Connecticut.

PROCEDURES

Seasonal Menus

Balanced menus that follow current USDA dietary recommendations and incorporate fresh, Connecticut-grown fruits and vegetables were developed (Gacoin 1988). A weekly menu was prepared for each month of the growing season in Connecticut, May through October, and for the winter. The menus feature the diverse Connecticut-grown fresh produce available during each month (CTDA 1985). The winter menu specifies meals and snacks for a week and includes fruits and vegetables that can be stored and used fresh during November through April. Although other Connecticut-grown foods, such as milk, eggs, beef, pork, and seafood, are included on the menus, the opportunities for production in Connecticut are not analyzed here.

The menus were designed to include the recommended daily number of servings of four basic food groups of the Daily Food Guide (USDA 1979) and follow the recent Pattern for Daily Food Choices (USDA 1986b). These two guides were developed to help consumers plan nutritionally balanced meals and snacks. In these guides, foods are grouped according to similar nutrient composition. Under each food grouping, numbers and sizes of servings are suggested to meet nutrient needs of various age and sex categories. These needs are determined regularly by the Food and Nutrition Board of the National Academy of Sciences and published as the *Recommended Dietary Allowances*, or *RDA* (NAS 1980). Because the RDA contain recommendations for over 30 nutrients, the Daily Food Guide and the Pattern for Daily Food Choices simplify ensuring adequate nutrition.

The "Connecticut-grown" menus meet the recommendations for balanced nutrition for an adult female with an average level of activity. Since children and the elderly eat less, and adolescents and adult males eat more, we assumed the food intake of an adult female would represent average intake for the entire population.

The menus were analyzed for conformance to RDA (ESHA Research 1987) and generally meet at least two-thirds of the RDA for all nutrients. They are within the recommended calorie allowances for the reference person. The percentages of calories from protein, carbohydrate and fat also reflect current, accepted recommendations.

Each daily menu contains three meals and suggestions for at least one snack, following typical American habits. However, some foods, chosen for their seasonal availability and nutritional value, differ from typical patterns. Although the menus emphasize foods low in fat, sugar and salt and minimize consumption of processed and convenience foods, they do include some restaurant meals and fast foods to reflect current lifestyles in Connecticut. Individuals will, of course, depart from the menus by eating different amounts or types of foods. Nevertheless, the menus show how Connecticut-grown fruits and vegetables can be included in meals and snacks that meet the criteria of nutritional adequacy, variety and moderation.

Calculation of Potential Per Capita Intake from Proposed Seasonal Menus

The amounts for each meal were summed in common units to obtain a weekly total. For example, if a half cup of broccoli is eaten three times weekly, then the total broccoli for the week is 1.5 cups. The amount of each Connecticut-grown fruit or vegetable in the weekly menu was converted from such common

units as cups or pieces of fruit to pounds (USDA 1982, 1984). Monthly totals of fruits and vegetables available fresh during May through October and those normally stored and available fresh during November through April were the weekly amounts multiplied by 4.083 to convert from a weekly to a monthly basis. Seasonal totals were the sum of monthly totals.

Assumptions for Consumption, Production and Net Income in Connecticut

Our assumptions are: 1) The population remains constant at 3,154,000, the 1984 level; 2) The current consumption of fresh produce is the same as the national average; 3) The potential consumption of fresh produce reflects adoption of the proposed diet by the entire population; and 4) The yields, costs and returns per acre for fresh produce remain unchanged.

The following definitions will aid understanding of column headings in Tables 3-6.

Current Consumption and Supply

In Table 3, *current USA consumption* is the national average annual consumption in pounds per person in 1985 (USDA 1986a). The *current Connecticut supply* is the supply from Connecticut farms as a percent of supply from all sources. It includes availability during harvest, generally some portion of the period of May through October, and reasonable storage of items commonly stored. George Pauley of Stop and Shop estimated the annual cycle of availability and demand for fresh vegetables and fruits. The *current Connecticut seasonal consumption* is the estimated amount of fresh vegetables and fruits that would be consumed during times they could be produced or stored in Connecticut. It is the product of three items: 1985 current USA consumption, current Connecticut supply, and 1984 Connecticut population, 3,154,000 (USDC 1985).

Potential Connecticut Consumption and Change in Consumption

The *potential Connecticut consumption* is the amount of fresh vegetables and fruits that a person would eat, following the proposed diet. Although the menus emphasize fresh vegetables and fruits throughout the year, the calculated consumption is only for that portion of the year, generally May through October, when the items could be available from Connecticut farms. Items commonly stored, such as potatoes, onions, winter squash, apples and pears, were considered available through at least a portion of the winter. The *potential Connecticut seasonal consumption* is the quantity of fresh fruits and vegetables that would be consumed in season if the entire population adopted the proposed diet. It is the product of potential Connecticut consumption and the 1984 Connecticut population. The *potential change* is simply the difference between potential seasonal consumption under the proposed diet and current seasonal consumption.

Current Opportunities for Farmers

In Table 4, *annual yield* was obtained from several sources in the following order: Bravo-Ureta et al 1985, Wilcock 1985, USDA 1986a, USDC 1984a,b, Lorenz and Maynard 1980, Castaldi 1987, Castaldi and Forshey 1986, Christensen 1982, and Johnson and Criner 1985. Where more than one crop of an item is grown annually the average yield per crop is shown. Douglas Stewart of Franklin, CT estimated mushroom yield and return. The *crop area* in 1982 was taken from the 1982 Census of Agriculture (USDC 1984a,b) for vegetables and small fruits in Connecticut. For tree fruits, the acreage of bearing trees was estimated by multiplying the total acreage reported by the ratio of bearing to total trees. The *current Connecticut seasonal crop area*, in acres, is the area needed to satisfy current seasonal demands for fresh fruits and vegetables. It is estimated by dividing current Connecticut seasonal consumption by average yield per acre. The *current additional crop area*, in acres, is simply the difference between the current Connecticut seasonal crop area and the 1982 crop area. It represents the additional acreage that could be planted and harvested to meet current demand. A negative value indicates that the actual 1982 crop area exceeded the current seasonal crop area needed; a negative value could arise from overproduction in 1982, export out of state, an underestimate of current Connecticut consumption, or an overestimate of annual yield.

Potential Opportunities for Farmers

The *potential Connecticut seasonal crop area*, in acres, would be required to produce the portion of vegetables and fruits harvested fresh or

stored and consumed as fresh. It is potential Connecticut seasonal consumption under the proposed diet divided by annual yield. The *potential additional crop area* is the difference between potential Connecticut seasonal crop area and the 1982 crop area.

Net Income for Farmers Producing for Current and Proposed Diets

In Table 5, *net return* is gross revenue per acre less variable and fixed production costs. Net returns were obtained from Connecticut enterprise budgets (Bravo-Ureta et al 1985), from Massachusetts process budgets (Wilcock 1985) amended by translating equipment and labor costs to Connecticut values, or from individual enterprise budgets for fruits (Castaldi 1987, Castaldi and Forshey 1986, Christensen 1982, Johnson and Criner 1985). The *income in 1982* is the product of 1982 crop area and net return. The *current Connecticut seasonal income* is the net income that could be obtained if all current seasonal consumption were produced on Connecticut farms. It is the product of current Connecticut seasonal crop area and net return. The *current additional income* is an estimate of additional net income for Connecticut farmers if all current consumption were produced by Connecticut farms. It is the difference between current Connecticut seasonal income and 1982 income. A negative value indicates that 1982 income is greater than current Connecticut seasonal income. This is caused by a negative net return, a loss, or negative current additional crop area. The *potential Connecticut seasonal income* is an estimate of net income for Connecticut farmers if they meet the demand of potential seasonal consumption caused by adoption of the proposed diet by the entire population. It is the product of potential Connecticut seasonal crop area and net return. The *potential additional income* is the difference between potential Connecticut seasonal income and 1982 income.

Identifying Current and Potential Strategic Opportunities for Farmers

To identify current and potential strategic opportunities for farmers we examined profitability, expansion and additional net income. Profitability is net return per acre; expansion is additional acres; additional net income is the product of the first two, i.e., net return times additional acres.

RESULTS AND DISCUSSION

Diet and Nutrition

Proposed seasonal menus emphasizing fresh Connecticut-grown fruits and vegetables in season are in the Appendix. The menus and their dietary analyses are also published separately (Gacoin 1988). In addition to meeting current dietary guidelines, the menus on average meet at least two-thirds of the RDA for all nutrients. Foods in the fruit and vegetable group contain significant vitamins A and C, potassium, and fiber. The menu for a day in July is shown in Table 1 and its nutritional analysis is in Table 2. A variety of Connecticut-grown fresh fruits and vegetables is featured. Nutritionally, this sample menu falls within the dietary guidelines and meets at least 75 percent of RDA for 22 of 28 items listed. These proposed menus provide a nutritious diet and are also a foundation for profitable expansion of farming in Connecticut.

Consumption and Production of Fresh Produce with Current and Proposed Diets

Current USA annual consumption of the selected fresh vegetables and fruits in this study is about 225 pounds per person (Table 3). From the length of time fresh produce is available in the market and the time when it could actually be produced on Connecticut farms, we estimate that currently the supply from Connecticut farms ranges from a low of 20 percent for asparagus to 100 percent for mushrooms, cherries and raspberries. About 107 pounds or 47 percent of current annual consumption could be produced in season on Connecticut farms.

Potential seasonal consumption, 429 pounds per person, is nearly four times the current level. Adoption of the proposed diet, emphasizing fresh vegetables and fruits, by the entire Connecticut population would markedly increase seasonal consumption except for celery and lettuce (Table 3). It should be stressed that these estimates represent an upper limit. The actual consumption in the future, of course, is likely to lie somewhere between the potential and current.

TABLE 1--A PROPOSED MENU FOR A WEDNESDAY IN JULY EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.[1]

BREAKFAST	LUNCH	DINNER
CANTALOUPE (1/4 melon)	Fish filet sandwich (1)	Tabouleh & kidney bean salad (3/4 cup)
BLUEBERRY muffin (1)	French fries (small)	SUMMER SQUASH, MUSHROOM & BROCCOLI stir fry (1 cup)
Ricotta cheese (1/4 cup)	Low fat milk (1 cup)	CHERRY TOMATOES (1/2 cup)
Coffee, tea	Snack: PEACH (1)	French bread (1 slice)
		Vanilla pudding (1/2 cup)

[1] Produce capitalized is Connecticut-grown.

TABLE 2--NUTRITIONAL ANALYSIS AND PERCENTAGE OF RECOMMENDED DAILY ALLOWANCES (RDA) FOR A PROPOSED MENU FOR A WEDNESDAY IN JULY (TABLE 1).

	Weight[1]		%RDA		Weight[1]		%RDA
Calories	1644	*	80	Pyridoxine-B6	1.29	mg	65
Protein	62.0	g	136	Cobalamin-B12	2.68	mcg	89
Carbohydrates	225	g**	75	Folacin	304	mcg	76
Dietary Fiber	27.8	g*	135	Pantothenic acid	5.37	mg*	77
Fat-Total	58.3	g**	85	Vitamin C	153	mg	255
Fat-Saturated	19.9	g**	87	Vitamin E	6.65		83
Fat-Mono	19.2	g**	84	Calcium	1108	mg	139
Fat-Poly	13.2	g**	58	Copper	1.52	mg*	61
Cholesterol	121	mg**	40	Iron	13.3	mg	74
Vit A-Carotene	710	RE+		Magnesium	331	mg	110
Vit A-Preformed	299	RE+		Phosphorus	1341	mg	168
Vitamin A-Total	1010	RE+	126	Potassium	3835	mg*	102
Thiamin-B1	1.39	mg	135	Selenium	142	mcg*	113
Riboflavin-B2	1.80	mg	146	Sodium	1762	mg*	80
Niacin-B3	17.1	mg	126	Zinc	8.60	mg	57

[1] g=grams; mg=milligrams; mcg=micrograms + RE=Retinol Equivalents
* Suggested values; within recommended ranges ** Dietary Goals

Weight: 2150 grams (75.8 oz); Water weight: 1786 grams
Calories from protein: 15%
Calories from carbohydrates: 54%
Calories from fats: 31%
Fiber=1 gram/100 kcal

TABLE 3--FRESH PRODUCE CONSUMPTION IN CONNECTICUT UNDER CURRENT AND PROPOSED DIETS.

	Current			Potential		
PRODUCE	USA Consum lb/cap	CT Supply %	CT Seasonal ton	CT Consum lb/cap	CT Seasonal ton	Change Consum ton
VEGETABLES						
Asparagus	0.5	20	158	6.5	10250	10092
Snap Beans	0.5	27	215	4.1	6492	6277
Broccoli	2.9	33	1524	10.7	16913	15388
Cabbage	4.7	38	2779	4.5	7175	4396
Carrots	7.6	33	3995	5.6	8883	4888
Cauliflower	2.2	36	1262	4.3	6833	5572
Celery	7.4	27	3183	1.1	1708	-1474
Sweet Corn	7.7	41	4968	21.2	33484	28516
Cucumbers	2.2	28	976	7.6	12027	11051
Eggplant	0.2	33	105	2.6	4100	3995
Lettuce	25.5	44	17873	10.2	16059	-1814
Mushrooms	2.0	100	3154	10.2	16059	12905
Onions	19.4	58	17846	16.5	25967	8121
Peas, Grn & Snap	0.0*	21	7	13.0	20500	20494
Green Peppers	1.9	25	749	4.8	7517	6768
Potatoes	64.1	66	66337	45.3	71410	5072
Pumpkins	4.0[u]	82	5161	9.4	14760	9599
Spinach	0.2	25	59	7.6	11959	11899
Summer Squash	0.5	35	273	7.1	11139	10866
Winter Squash	NA	82		16.7	26309	26309
Tomatoes	15.8	25	6229	31.8	50226	43997
SUBTOTAL	169.3			240.8		
FRUITS						
Apples	17.9	70	19760	48.8	76911	57151
Apples for Juice	19.4			47.6	75147	75147
Cherries	0.5	100	789	1.1	1708	920
Peaches	3.9	32	1968	16.2	25625	23657
Pears	3.0	78	3690	29.2	46126	42436
Plums	0.2	75	237	2.4	3758	3522
Blueberries	0.2	82	258	6.1	9567	9309
Raspberries	0.5[u]	100	789	2.3	3588	2799
Strawberries	3.2	25	1262	10.7	16913	15651
Cantaloupes	6.5	24	2460	14.4	22721	20261
SUBTOTAL	55.3			178.9		
TOTAL	224.6			419.6		

* = less than 0.1 lb/person

[u] = undocumented

Generally, Connecticut produces far less fresh produce than it consumes seasonally (Table 4). Notable exceptions, i.e. surpluses, occurred in 12 of 31 items. These may be only apparent surpluses caused by overproduction in 1982, an overestimate of yield, an underestimate of current Connecticut consumption, or export out of state. For example, snap beans and mushrooms are currently exported, and consumption of strawberries and sweet corn may be underestimated. About 6400 acres produce these apparent surpluses. Nevertheless, if we disregard the apparent surpluses, nearly 11,000 or 73 percent more acres of cropland would be needed to supply current Connecticut seasonal consumption. Even more striking, adoption of the proposed diet by the entire population of Connecticut would require nearly 139,000 acres or nine times the 15,700 acres used in 1982.

Currently, opportunities to expand production of many fruits and vegetables exist. Although the total acreage required for current fresh produce consumption could easily be obtained from existing farmland, one must ask if land is available for a nine-fold expansion. Surprisingly, in 1982 Connecticut prime farmland exceeded land in crops by 150,000 acres, and prime plus important farmland exceeded land in crops by 339,000 acres (Waggoner 1986). Thus, availability of suitable farmland should be no deterrent to agricultural expansion.

Net Income for Farmers Producing for Current and Proposed Diets

In 1982 net income from the selected fresh produce was estimated to be about $14.1 million (Table 5). Net returns were not available for asparagus, carrots, celery, cherries, and plums. Published values suggest that cantaloupes would be produced at a loss (Bravo-Ureta et al 1985). Because average yields of apples, peaches and pears are low the net return for apples is low and for peaches and pears net return is negative. Higher yields would greatly increase net return for all three fruits (Castaldi and Forshey 1986, Castaldi 1987). Other negative current additional income figures resulted from the negative values of current Connecticut additional crop area (Table 4), i.e. the apparent surpluses caused the negative current additional income. If we consider only those crops with positive additional income, current additional net income of about $13 million could be realized if enough Connecticut acres were harvested to supply the current seasonal consumption.

If the proposed diet were adopted by the entire Connecticut population, potential seasonal income would become more than eight times the 1982 income. The marked increases in consumption would erase the apparent surpluses of 1982 and make those values positive for potential additional income.

Current and Potential Strategic Opportunities for Farmers

As the previous discussion indicates, Connecticut has prime farmland available, current consumption of fresh produce exceeds current production, and adoption of the proposed great increase in fresh produce consumption would greatly increase demand for fresh vegetables and fruits. Where are the strategic opportunities for farming?

We have selected the current and potential strategic opportunities according to the criteria of profitability for a farmer, expansion to additional acres and additional net income for Connecticut (Table 6). Additional net income combines profitability and expansion. For current strategic opportunities we chose a criterion of: 1) More than $1,000 per acre net return; or 2) More than 500 acres expansion to satisfy current consumption; or 3) More than $200,000 current additional net income for Connecticut farmers.

Current profitability: Sixteen crops, twelve vegetables and two fruits, meet or exceed the criterion of $1000 minimum net return (Table 6). Although net return can be higher for fruit than for vegetables, the higher establishment costs and longer time to achieve full fruit production prevents the flexibility of land use available with annual crops.

Current expansion: Only four vegetables and three fruits have current opportunity to expand more than 500 acres. Ironically, the acreage of potatoes, with the greatest opportunity for additional acres, has recently decreased sharply. Pests and low net return have made this crop unattractive in Connecticut. Although a demand for pears and cantaloupes exists, our data suggest that they would be grown at a loss at current yields.

TABLE 4--PRODUCTION OPPORTUNITIES FOR FRESH PRODUCE IN CONNECTICUT UNDER CURRENT AND PROPOSED DIETS.

			Current		Potential	
PRODUCE	Annual Yield lb/A	1982 Crop Area Acres	CT Seasonal Acres	Additional Crop Area Acres	CT Seasonal Acres	Additional Crop Area Acres
VEGETABLES						
Asparagus	2500	35	126	91	8200	8165
Snap Beans	4500	947	96	-851	2885	1938
Broccoli	4400	41	693	652	7688	7647
Cabbage	22000	370	253	-117	652	282
Carrots	25400	45	315	270	699	654
Cauliflower	17025	117	148	31	803	686
Celery	54200		117	117	63	63
Sweet Corn	10000	3957	994	-2963	6697	2740
Cucumbers	12060	255	162	-93	1995	1740
Eggplant	9900	83	21	-62	828	745
Lettuce	15000	100	2383	2283	2141	2041
Mushrooms	186487	112	34	-78	172	60
Onions	37500	8	952	944	1385	1377
Peas, Grn & Snap	3750	46	4	-42	10934	10888
Green Peppers	11200	375	134	-241	1342	967
Potatoes	25000	1785	5307	3522	5713	3928
Pumpkins	18000	287	573	286	1640	1353
Spinach	6650	70	18	-52	3597	3527
Summer Squash	19950	578	27	-551	1117	539
Winter Squash	10800				4872	4872
Tomatoes	16200	516	769	253	6201	5685
SUBTOTAL*		9727	13125	8450	69623	59896
FRUITS						
Apples	12828	4238	3081	-1157	11991	7753
Apples for Juice	12828				11716	11716
Cherries	4768	18	331	313	717	699
Peaches	5421	606	726	120	9454	8848
Pears	7826	345	943	598	11788	11443
Plums	2560	25	185	160	2936	2911
Blueberries	2388	163	216	53	8012	7849
Raspberries	1948	28	810	782	3683	3655
Strawberries	9000	499	280	-219	3758	3259
Cantaloupes	8300	57	593	536	5475	5418
SUBTOTAL*		5979	7164	2561	69531	63552
TOTAL*		15706	20289	11011	139154	123448

* Positive values only

TABLE 5--NET INCOME FROM FRESH PRODUCE IN CONNECTICUT UNDER CURRENT AND PROPOSED DIETS.

			Current		Potential	
PRODUCE	Net Return $/Acre	1982 Net Inc $1000	CT Seasonal $1000	Additional Net Inc $1000	CT Seasonal $1000	Additional Net Inc $1000
VEGETABLES						
Asparagus	NA					
Snap Beans	732	693	70	-623	2112	1419
Broccoli	440	18	305	287	3383	3365
Cabbage	944	349	239	-111	616	266
Carrots	NA					
Cauliflower	1227	144	182	38	985	841
Celery	NA					
Sweet Corn	872	3451	866	-2584	5840	2389
Cucumbers	2041	520	330	-190	4071	3550
Eggplant	942	78	20	-58	780	702
Lettuce	1330	133	3169	3036	2848	2715
Mushrooms	9324	1044	315	-729	1606	562
Onions	2309	18	2198	2179	3198	3179
Peas, Grn & Snap	1156	53	4	-49	12639	12586
Green Peppers	1289	483	172	-311	1730	1247
Potatoes	675	1205	3582	2377	3856	2651
Pumpkins	1224	351	702	351	2007	1656
Spinach	2022	142	36	-106	7272	7131
Summer Squash	2433	1406	67	-1340	2717	1311
Winter Squash	1117				5442	5442
Tomatoes	1947	1005	1497	493	12073	11068
SUBTOTAL*		11094	13755	8761	73174	62080
FRUITS						
Apples	127	538	391	-147	1523	985
Apples for Juice	NA					
Cherries	NA					
Peaches	-1454	-881	-1056	-175	-13746	-12865
Pears	-1771	-611	-1670	-1059	-20876	-20265
Plums	NA					
Blueberries	560	91	121	30	4487	4396
Raspberries	5666	159	4587	4428	20870	20711
Strawberries	4450	2221	1248	-973	16725	14504
Cantaloupes	-225	-13	-133	-121	-1232	-1219
SUBTOTAL*		3009	6347	4458	43604	40596
TOTAL*		14103	20102	13219	116778	102676

* Positive values only

TABLE 6--CURRENT AND POTENTIAL STRATEGIC OPPORTUNITIES FOR FRESH PRODUCE PRODUCTION IN CONNECTICUT.

	Current			Potential	
PRODUCE	Net Return $/A	Additional Crop Area Acres	Additional Net Income $1000	Additional Crop Area Acres	Additional Net Income $1000
VEGETABLES					
Asparagus				8165	
Snap Beans					1419
Broccoli		652	287	7647	3365
Cabbage					
Carrots					
Cauliflower	1227				
Celery					
Sweet Corn				2740	2389
Cucumbers	2041				3550
Eggplant					
Lettuce	1330	2283	3036	2041	2715
Mushrooms	9324				
Onions	2309	944	2179		3179
Peas, Grn & Snap	1156			10888	12586
Green Peppers	1289				1247
Potatoes		3522	2377	3928	2651
Pumpkins	1224		351		1656
Spinach	2022			3527	7131
Summer Squash	2433				1311
Winter Squash	1117			4872	5442
Tomatoes	1947		493	5685	11068
SUBTOTAL		7401	8723	49491	59708
FRUITS					
Apples				7753	
Apples for Juice				11716	
Cherries					
Peaches				8848	
Pears		598		11443	
Plums				2911	
Blueberries				7849	4396
Raspberries	5666	782	4428	3655	20711
Strawberries	4450			3259	14504
Cantaloupes		536		5418	
SUBTOTAL		1915	4428	62854	39611
TOTAL		9316	13151	112345	99319

Current = Net return greater than $1,000/A; Additional crop area greater than 500 A; Additional net income greater than $200,000.
Potential = Additional crop area greater than 2,000 A; Additional net income greater than $1,000,000.

Current additional net income: Six vegetables and one fruit exceed the minimum criterion for additional net income, $200,000.

Some of the crops meet the criterion because of current expansion and some because of profitability. For example, broccoli, with a modest net return of $440 per acre (Table 5), currently has opportunity to expand 652 acres (Table 4). This expansion would bring $287,000 in current additional net income.

For potential strategic opportunities we changed two of the criteria: 1) net return remained more than $1,000 per acre; 2) expansion to satisfy potential consumption increased to more than 2000 acres; 3) potential additional net income for Connecticut farmers increased to more than $1 million.

Potential profitability: We assumed no change in net return. Therefore, current and potential profitability remain the same.

Potential expansion: Adoption of the proposed diet would provide increased opportunities for agricultural expansion. Potential additional area would increase for all crops (Table 4). Nine vegetables and eight fruits could each expand more than 2000 acres. Asparagus, sweet corn, peas, spinach, winter squash, apples, peaches, plums, blueberries, and strawberries would be added to the list of current opportunities (Table 6).

Potential additional net income: At least $1 million in potential additional net income would be realized by 14 vegetables and three fruits. Snap beans, cucumbers, peppers, and summer squash would be added to the list of current opportunities (Table 6). Increased vegetable production on 49,000 additional acres would yield $59.7 million in additional net income. Similarly, fruit production on 63,000 additional acres would yield $39.6 million in additional net income to farmers.

The criteria each serve different interests; opportunities by one criterion are not necessarily opportunities by another. Profitability is of interest to the individual farmer. Currently and potentially, mushrooms, raspberries and strawberries offer the highest net returns. Expansion suggests what will happen to the landscape. Currently, potatoes, lettuce and onions have greatest opportunity; potentially, apples for juice, pears and peas loom large. Additional income affects the economy of the state. Currently, raspberries, lettuce and potatoes would bring the greatest additional net income; potentially, raspberries show promise. Unfortunately, the criteria cannot be used in isolation. For example, mushrooms have a very high profitablity, but no opportunity to expand currently and little potentially. Apples for juice have great potential for expansion, but farmers probably cannot afford to grow apples for that purpose alone. Juice and cider are currently made from culls. On balance, additional income is likely the best criterion to identify strategic opportunities. Although attractive niches exist for many crops, the combination of net return and expanded acreage shows where the greatest number of farmers could participate profitably.

CONCLUSION

The calculations and the opportunities discovered are founded on the following suppositions: Our assumptions of constant population, yield and net return, which affect demand, production and opportunities. Our assumption of the availability of labor and the will of the farmers to toil and take risks. Our assumption of a continued trend towards a more nutritious and healthful diet and the eventual adoption of the proposed diet by the entire population.

To conclude, it seems appropriate to adopt a goal father than forecast a trend. Thus, we restate the goal of the Commission on Connecticut's Future: "To assure the health and well-being of the citizens of Connecticut by improving the diets of our people and protecting the safety of our food; by promoting the prosperity of our farms and expanding the profits of our food and agricultural industry while preserving the landscape of our state."

This goal seems one all would desire, and clearly, adoption of the menus and growing the produce in Connecticut are means to that goal. To meet current demand farmers could harvest 11,000 additional acres and realize $13 million in additional net income. Adoption of the proposed menus would increase the seasonal consumption of fresh fruits and vegetables four times. Demand created would require 123,000 additional acres

and yield $103 million in additional net income for Connecticut farmers. Farmers would benefit from a more than eight-fold increase in production and net income, and farm fields would continue in the Connecticut landscape.

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TABLE A-1. A PROPOSED MENU FOR MAY EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce Featured:
APPLE JUICE, ASPARAGUS
BROCCOLI
LEEKS, LETTUCE
MUSHROOMS
POTATOES
RHUBARB, SPINACH,
STRAWBERRIES

c=cup, oz=ounce, sl=slice, sq=square, T=tablespoon, t=teaspoon

SUNDAY	MONDAY	TUESDAY
BREAKFAST		
Eggs Benedict (2 eggs, 1 English muffin Hollandaise sauce 1/4 c)	Hot wheat cereal (3/4 c)	Oatmeal muffin with walnuts (1)
	Raisins (2 T)	Cottage cheese (1/2 c)
STRAWBERRIES (1/2 c)	Low fat milk (1 c)	APPLE JUICE (3/4 c)
Coffee, tea	Orange juice (3/4 c)	Coffee, tea
	Coffee, tea	
LUNCH		
SPINACH, early LETTUCE & MUSHROOM salad (1-1/2 c)	Monterey Jack cheese (1 oz)	Beef tacos (2)
	Whole grain crackers (4)	Raw carrot (1)
Creamy garlic dressing (1 T)	Cole slaw (1/3 c)	Low fat milk (1 c)
Whole wheat Bread (2 sl)	Low fat milk (1 c)	
	Gingerbread (2" sq)	Snack: STRAWBERRIES (1/2 c)
Tuna in water (2 oz)		
Low fat milk (1 c)		
DINNER		
Broiled scallops (3 oz) with lemon	Stir fry chicken (3 oz) with MUSHROOMS (1/4 c) & cashews (2 T)	LEEK & POTATO Soup (1-1/2 c)
Baked POTATO (1)		Corn bread (2" sq)
Steamed BROCCOLI (3/4 c)	Rice (3/4 c)	Kidney & pinto bean salad (1/2 c)
French Bread (1 sl)	Steamed ASPARAGUS (3/4 c)	Low fat milk (1 c)
Low fat milk (1 c)	Tea	Snack: Rye bread (1 sl) Peanut butter (1 T)
Vanilla cookie (1)		
Pineapple chunks (1/2 c)	Snack: Vanilla Ice Cream (1/2 c) STRAWBERRIES (1/2 c)	

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST			
Granola (1/4 c) mixed with yogurt (1/2 c) Whole wheat toast (1 sl) Cranberry juice (3/4 c) Coffee, tea	Whole grain bagel (1) Peanut butter (2 T) Low fat milk (1 c) Orange (1) Coffee, tea	Bran cereal (1 oz) Banana (1/2) Grapefruit juice (1/2 c) Low fat milk (1 c) Coffee, tea	SPINACH quiche (1/8 pie) APPLE JUICE (3/4 c) English muffin (1/2) Coffee, tea
LUNCH			
Early LETTUCE salad (1 c) with cooked chicken (2 oz), Swiss cheese (1 oz) French dressing (1T) Pumpernickel bread (2 sl) Low fat milk (1 c) Carrot cake (2" sq)	Tuna sandwich on rye (1) Celery (1 stalk) Low fat milk (1 c) STRAWBERRIES (1/2 c)	Split pea soup (1 c) French bread (2 sl) Brie cheese (1 oz) Raw carrot (1) Snack: Low fat milk (1 c) Date & nut bread (1 sl)	Cottage cheese (3/4 c) Peaches (1/2 c) Almonds (1 T) Whole grain crackers (4) Snack: Low fat milk (1 c)
DINNER			
Linguini (3/4 c) Clam sauce (1/2 c) Steamed SPINACH (3/4 c) Italian bread (1 sl) Pear (1) Snack: Low fat milk (1 c)	Braised liver & onions (3 oz liver & 1/4 onion) Mashed POTATOES (1/2 c) GARDEN SALAD (1 c) Whole wheat bread (2 sl) Low fat milk (1 c) Snack: APPLE (1)	Baked fish creole (3 oz fish with onion, pepper & tomato) Brown rice (3/4 c) Steamed ASPARAGUS (3/4 c) RHUBARB pie (1 sl) Low fat milk (1 c)	Shishkebab (2) Lamb (4-6 cubes) Pepper (1/2) Onion (1/4) MUSHROOMS (6) Baked POTATO (1) Tossed salad (1-1/2 c) SPINACH & LETTUCE blue cheese dressing (1 T) Rye bread (2 sl) STRAWBERRIES (1/2 c)

TABLE A-2. A PROPOSED MENU FOR JUNE EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce Featured:
APPLE JUICE
ASPARAGUS
BROCCOLI
CABBAGE
CAULIFLOWER
CHARD
CHIVES
LETTUCE
MUSHROOMS
ONIONS
PEAS
RADISH
RHUBARB
SPINACH
SPROUTS
STRAWBERRIES
SUMMER SQUASH

c=cup, oz=ounce, sl=slice, sq=square, T=tablespoon, t=teaspoon

SUNDAY	MONDAY	TUESDAY
BREAKFAST		
SPINACH omelet (2 eggs, 1/2 c SPINACH)	Cold whole grain cereal (1 oz)	French toast (2)
Whole wheat English muffin (1)	STRAWBERRIES (1/2 c)	Spiced RHUBARB sauce (1/4 c)
APPLE JUICE (3/4 c)	Low fat milk (1 c)	Low fat milk (1 c)
Coffee, tea	Coffee, tea	Coffee, tea
Snack: BERRIES (1/2 c)		
LUNCH		
Fish Chowder with Potatoes & ONIONS	Bean chowder with cheese (1 c)	Chicken (2 oz) Sandwich on whole grain roll, mayonnaise, LETTUCE (1/4 c)
Spring green salad with fresh CHIVES, CABBAGE & baby LETTUCE (1-1/2 c)	Tossed salad with fresh LETTUCE, ONIONS, RADISHES, SPROUTS, CABBAGE (1 c)	Raw BROCCOLI (1/2 c)
Italian dressing (1 T)	French dressing (1 T)	Orange juice (1 c)
Corn bread (2" sq)	Pumpernickle bread (1 sl)	Snack: Low fat milk (1 c) Peanut butter cookie (1)
RHUBARB crisp (1/3 c)	Low fat milk (1 c)	
Low fat milk (1 c)		
DINNER		
Cheese & MUSHROOM Pizza (2 sl)	Chicken Cacciatore (3 oz chicken)	Braised bay scallops (4 oz) w/lemon
Carrot sticks (1 carrot)	Brown rice (1/2 c)	Spinach noodles (1/2 c)
Oatmeal cookie (1)	Fresh PEAS (1/2 c)	Steamed fresh ASPARAGUS (5 spears)
Low fat milk (1 c)	Italian Bread (1 sl)	Marinated MUSHROOMS & CHIVES (1/2 c)
Snack: Hearty Rye crackers (2)	STRAWBERRY shortcake (1/2 c)	Sourdough roll (1)
	Low fat milk (1 c)	Plain yogurt with FRESH FRUIT (1/2 c)
	Snack: APPLE JUICE (3/4 c)	

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST			
Low fat yogurt (1 c) Fresh FRUIT (1/2 c) Raisin Bagel (1) Coffee, tea	Bran muffin (1) Low fat cottage cheese (1/4 c) Banana (1) Orange juice (3/4 c) Coffee, tea	Oatmeal (3/4 c) Raisins (2 T) Low fat milk (1 c) Grapefruit (1/2) Coffee, tea	Waffles (2) STRAWBERRIES (1/2 c) MAPLE SYRUP (2 T) Low fat milk (1 c) Coffee, tea
LUNCH			
Hard-cooked egg (1) SPINACH, MUSHROOM, & CABBAGE SALAD (1 c) Italian dressing (1 T) Rye crackers (3) Orange (1) Snack: Oatmeal cookie (1)	Tuna salad sandwich on a hard roll with LETTUCE (2 leaves) Raw CAULIFLOWER (1/2 c) Low fat milk (1 c) APPLE (1)	Low fat vanilla yogurt mixed with sunflower seeds, nuts, peanuts (1 c) Bagel (1) Carrot sticks (1 carrot) APPLE JUICE (3/4 c) Snack: Cheddar cheese (1 oz) & FRUIT	Chef's salad (2 c) CABBAGE, ROMAINE LETTUCE, SPINACH, RADISH, GREEN ONION, CELERY, CAULIFLOWER, cheese (1 oz) ham (1 oz), 1 egg blue cheese dressing (1 T) Whole wheat bread (2 sl) Pineapple chunks (1/2 c)
DINNER			
Scalloped POTATOES with ham (2 oz), ONIONS & Swiss cheese (1 c) Steamed BROCCOLI (2/3 c) Whole wheat biscuits (2 small) Low fat milk (1 c) Snack: Applesauce (1/2 c)	Chinese hot & sour soup w/ SNAP PEAS & SWISS CHARD (1 c) Pork (3 oz) & BROCCOLI (2/3 c) stir fry (1 c) Rice (1/2 c) Fortune cookie (1) Tea Snack: Low fat milk (1 c) Rye crackers (2) Peanut butter (1 T)	Poached fresh fish (4 oz) with MUSHROOMS & CHIVES Steamed SNAP PEAS (3/4 c) Boiled potato (1) Carrot cake (2" sq) Low fat milk (1 c) Snack: Popcorn (1 c)	Restaurant Menu: SPINACH soup (1 c) Veal (4 oz) w/lemon Fresh ASPARAGUS (5 spears) Spaghetti & sauce (1 c) Italian bread (2 sl) Red wine (1 glass) BERRIES & ice cream (1/2 c each) Coffee

TABLE A-3. A PROPOSED MENU FOR JULY EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce Featured:
APPLE JUICE
BLUEBERRIES
BROCCOLI
CABBAGE
CANTALOUPE
CAULIFLOWER
CHERRIES
CUCUMBERS
GREEN BEANS
LETTUCE
MUSHROOMS
ONIONS
PEACHES
PEAS
POTATOES
RASPBERRIES
STRAWBERRIES
SUMMER SQUASH
SWEET CORN
TOMATOES
ZUCCHINI

SUNDAY	MONDAY	TUESDAY
BREAKFAST		
BROCCOLI (1/4 c) omelet (2 eggs)	Unsweetened cold cereal (1 oz)	Low fat yogurt (3/4 c)
Rye toast (1 sl)	BLUEBERRIES (1/2 c)	RASPBERRIES (1/2 c)
STRAWBERRIES (1/2 c)	Orange juice (3/4 c)	Oatmeal bread (2 sl)
Coffee, tea	Low fat milk (1 c)	
	Coffee, tea	Coffee, tea
LUNCH		
Low fat cottage cheese with CHIVES (3/4 c)	Roast beef sandwich (2 oz beef, 2 sl whole wheat bread, LETTUCE, mayo)	Pasta salad with FRESH VEGETABLES (1-1/2 c)
Sliced TOMATO (1)	CUCUMBER & yogurt salad (1/2 c)	Cheddar cheese (1 oz)
Wheat thins (6)	FRESH CHERRIES	Sesame crackers (4)
APPLE JUICE (3/4 c)		STRAWBERRIES (1/2 c)
Snack: Iced Tea Oatmeal cookie (1)	Snack: Raw SUMMER SQUASH (1/2 c)	APPLE JUICE (1/2 c)
		Snack: Low fat milk (1 c)
DINNER		
Broiled swordfish (3 oz)	Spicy red beans & rice (1 c)	Baked chicken breast (3-1/2 oz)
Brown rice (1/2 c)	Corn bread (2" sq)	Baked POTATO (1)
Sauteed MUSHROOMS (1/2 c)	Garden green salad LETTUCE (3/4 c) CABBAGE (1/4 c) BROCCOLI (1/4 c) CUCUMBER (1/4 c) RAW PEAS (1/4 c) blue cheese dressing (2 T)	Steamed PEAS (1/2 c)
French bread (1 sl)		TOMATO (1)
GREEN BEANS (1/2 c)		Whole wheat bread (1 sl)
Fresh fruit salad CANTALOUPE (1/4 c) BLUEBERRIES (1/4 c) PEACHES (1/4 c)		PEACH Cobbler (1 serving)
Low fat milk (1 c)	Low fat milk (1 c) PEACH (1)	Low fat milk (1 c)

c=cup, oz=ounce,
sl=slice, sq=square,
T=tablespoon, t=teaspoon

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST			
CANTALOUPE (1/4) BLUEBERRY muffin (1) Ricotta cheese (1/4 c) Coffee, tea	Scrambled eggs (2) with CORN (1/2 c) CANTALOUPE (1/4) Bagel (1) Coffee, tea	ZUCCHINI bread (1 sl) Peanut butter (1 T) Low fat milk (1 c) APPLE JUICE (3/4 c) Coffee, tea	Whole wheat pancakes (3 small) PEACH & BLUEBERRY SAUCE (1/3 c) Low fat yogurt (1/2 c) Coffee, tea
LUNCH			
Fish filet sandwich (1) French fries (sm) Low fat milk (1 c) Snack: PEACH (1)	CT-grown salad bar: LETTUCE, BROCCOLI, SNOW PEAS, TOMATOES CAULIFLOWER, ONIONS CABBAGE, ETC. dressing (2 T) Whole grain bread (2 sl) Low fat milk (1 c) Snack: Swiss cheese (1 oz)	Seafood salad(1/2 c) Stuffed TOMATO (1) Rye crackers (3) CUCUMBER spears (1/2 c) Low fat milk (1 c) Snack: BLUEBERRY muffin (1)	Steamed clams (10) POTATO SALAD (1/2 c) GREEN BEAN salad (1/2 c) Rye bread (2 sl) Low fat milk (1 c) Snack: PEACH (1)
DINNER			
Tabouleh & kidney bean salad (3/4 c) SUMMER SQUASH, MUSHROOM & BROCCOLI stir fry (1 c) CHERRY TOMATOES (1/2 c) French bread (1 sl) Vanilla pudding (1/2 c)	Pork chop (4 oz) trimmed & braised Steamed CABBAGE & SNOW PEAS (3/4 c) Rice (1/2 c) CUCUMBER slices (1/2 c) Iced tea Snack: Low fat milk (1 c) PEACH (1)	BROCCOLI & CAULI-FLOWER casserole with ONION, herbs & cheese (1 c) Baked ham (2 oz) Whole grain roll (1) GARDEN SALAD (1-1/2 c) STRAWBERRIES (1/2 c)	Hamburger (4 oz) on a roll (1) TOMATO (1) CUCUMBER & ONION salad (1/2 c) SWEET CORN (2 ears) Butter (2 t) Low fat milk (1 c) Snack: CANTALOUPE (1/4)

TABLE A-4. A PROPOSED MENU FOR AUGUST EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce featured:
BASIL
BEANS
BEETS,
BLUEBERRIES
CANTALOUPE,
CARROTS
CELERY,
CUCUMBER
EGGPLANT,
MAPLE SYRUP
MUSHROOMS,
NECTARINES
ONIONS,
PARSLEY
PEACHES
PEARS,
PEPPERS
PLUMS,
POTATOES
SUMMER SQUASH,
SWEET CORN
TOMATOES,
ZUCCHINI

c=cup, oz=ounce,
sl=slice, sq=square,
T=tablespoon, t=teaspoon

SUNDAY	MONDAY	TUESDAY
BREAKFAST		
CANTALOUPE (1/4) CORN Pancakes (2) MAPLE SYRUP (2 T) Low fat milk (1 c) Coffee, tea	Granola (1/2 c) BLUEBERRIES (1/2 c) Low fat milk (1 c) Coffee, tea	Fried egg (1) Sprouted wheat toast (2 sl) PEACH (1) Coffee, tea
LUNCH		
Gazpacho soup (1 c) TOMATOES, PEPPERS, ONIONS, CUCUMBERS Grilled cheese (1 oz) on whole wheat bread (2 sl) Raw CARROT (1) Snack: Low fat milk (1 c) BLUEBERRY muffin (1)	Tuna Grinder (1/2) with TOMATO (1/2) & GREEN PEPPER (1/4) Fresh PEACH (1) Low fat milk (1 c)	Pasta salad with GREEN PEPPER, CARROTS, CUKES, MUSHROOMS, RAW ZUCCHINI (1-1/2 c) Pickled BEETS (1/2 c) Rye crackers (2 lg) Cheddar cheese (1 oz) Snack: Low fat milk (1 c)
DINNER		
Barbecue chicken (3-1/2 oz) GREEN BEANS (1/2 c) Baked POTATO (1) Corn Bread (2" sq) Fresh NECTARINE (1) Iced tea	EGGPLANT parmesan (1 c) with TOMATO PEPPER, MUSHROOM, ONION, CELERY, cheese & breadcrumb SWEET CORN (1 ear) CUCUMBER salad (1/2 c) French bread (1 sl) Snack: PLUM (1)	Baked fish (3 oz) w/ garlic & herbs Brown rice (1/2 c) Steamed SUMMER SQUASH with BASIL (3/4 c) TOMATO salad (1/2 c) Low fat milk (1 c) Snack: ZUCCHINI bread (1 sl)

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST			
Bran flakes (1 oz) BLUEBERRIES (1/2 c) Orange juice (3/4 c) Low fat milk (1 c) Coffee, tea	Toasted English muffin (1) Peanut butter (2 T) CANTALOUPE (1/4) APPLE JUICE (3/4 c) Coffee, tea	Shredded wheat (1) PEACH (1) Low fat milk (1 c) Coffee, tea	Bran muffin (1) Ricotta cheese (1/2 c) Fruit salad (1/2 c) CANTALOUPE BLUEBERRIES PEACHES Coffee, tea
LUNCH			
Chicken sandwich (2 oz chicken, pita bread, GREEN PEPPER mayonnaise) CUCUMBER (1/2 c) Low fat milk (1 c) Oatmeal cookie (1)	Thinly sliced boiled ham (2 oz) Mustard (2 t) POTATO salad with GREEN PEPPER & CELERY (1 c) Sesame crackers (4) Low fat milk (1 c) PLUM (1)	Swiss cheese (1 oz) sandwich on rye (2 sl) with CUCUMBER slices (6) & mayonnaise (2 t) Raw SUMMER SQUASH (1/2 c) Low fat milk (1 c) Snack: Frozen yogurt cone (1 small)	Clam Chowder (1 c) Crackers (1/4 c) TOMATO (1) Low fat milk (1 c) Snack: BLUEBERRY muffin (1)
DINNER			
Spaghetti (1 c) Fresh TOMATO sauce (1/2 c) with meatballs (2) Grated cheese (2 T) GREEN BEANS (1/2 c) Raw CARROT (1) Italian bread (1 sl) Snack: Fresh PEAR (1) Swiss cheese (1 oz) PEACH (1)	Chili con carne (3/4 c beans & 2 oz ground beef) with fresh TOMATOES & VEGETABLES & cheese (1 oz) SWEET CORN (1 ear) Corn Bread (2" sq) TOMATO & PEPPER salad (1/2 c) Low fat milk (1 c) Snack:	Broiled bluefish (3 oz) Boiled POTATOES (1) with PARSLEY Steamed ZUCCHINI, GREEN PEPPERS, & ONION (3/4 c) Whole wheat bread (1 sl) TOMATO (1 sliced) CARROT cake (2" sq) Iced tea	Pepper steak (4 oz) MUSHROOM & rice pilaf (1/2 c) Steamed CARROTS (1/2 c) Marinated EGGPLANT & ONION (1/2 c) Rye bread (1 sl) CANTALOUPE (1/4) Low fat milk (1 c)

TABLE A-5. A PROPOSED MENU FOR SEPTEMBER EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce featured:
APPLES
BASIL
BEANS,
BEETS
BROCCOLI,
CABBAGE
CANTALOUPE,
CARROTS
CAULIFLOWER,
CUCUMBERS
LETTUCE,
MUSHROOMS
NECTARINES,
ONIONS
PARSLEY,
PEACHES
PEARS
PEPPERS,
PLUMS
POTATOES,
RASPBERRIES
SPINACH,
SUMMER SQUASH
SWEET CORN
TOMATOES
ZUCCHINI

c=cup, oz=ounce,
sl=slice, sq=square,
T=tablespoon, t=teaspoon

SUNDAY	MONDAY	TUESDAY
BREAKFAST		
Cottage cheese omelet with ONION & PEPPER (2 eggs, 1/4 c cheese, 1/4 PEPPER, 1/4 ONION)	Low fat yogurt (3/4 c)	Cold granola cereal (1/3 c)
Bagel (1)	PEACH (1)	PEAR (1)
CANTALOUPE (1/4)	Whole wheat toast (2 sl)	Low fat milk (1 c)
Coffee, tea	Coffee, tea	Coffee, tea
LUNCH		
Garden salad with ROMAINE LETTUCE, SPINACH, CABBAGE, GREEN PEPPER, CUCUMBER, etc. (2 c)	Bean tacos (2) with LETTUCE, TOMATOES, cheese & hot sauce	New England clam chowder (1 c)
MUSHROOMS (1/4 c)	CUCUMBER slices (1/2 c)	Salad (1-1/2 c) LETTUCE, CUKES, BROCCOLI, CABBAGE
dressing (2 T)	Low fat milk (1 c)	Italian dressing (2 T)
Boiled ham (2 oz)		Rye crackers (2)
Swiss cheese (1 oz)		CANTALOUPE (1/4)
Pumpernickel bread (1 sl)		
RASPBERRIES (1/2 c)		
DINNER		
SUCCOTASH (1-1/2 c) SWEET CORN, LIMAS	Poached flounder (3 oz)	Ziti (3/4 c)
Cheese biscuits (2)	GREEN BEANS (3/4 c)	Fresh TOMATO sauce (1/2 c) with MUSHROOMS & meat-balls (2)
TOMATO (1)	PARSLIED POTATOES (1)	Parmesan cheese (1 T)
Low fat milk (1 c)	CHERRY TOMATOES (4)	Steamed ZUCCHINI (1/2 c)
	French bread (2 sl)	Italian bread (1 sl)
Snack: APPLE cake (2" square)	Low fat milk (1 c)	
	Snack: PLUM (1)	Snack: Low fat milk (1 c) NECTARINE (1)

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST			
Bran-APPLE muffin (1) Peanut butter (2 T) RASPBERRIES (1/2 c) Low fat milk (1 c) Coffee, tea	French toast (2 sl) (sprouted wheat bread, 1 egg, 1/4 c milk) PEACH (1) Orange juice (3/4 c) Coffee, tea	Cold oat cereal (1 oz) Chopped walnuts (1/4 c) APPLE (1) Low fat milk (1 c) Coffee, tea	CORN pancakes (2) APPLE butter (1 T) Bacon (2 sl) Orange juice (3/4 c) Coffee, tea
LUNCH			
Egg salad sandwich with GREEN PEPPER & ROMAINE LETTUCE on hard roll Raw BROCCOLI (1/2 c) Low fat yogurt (1/2 c) with PEACH (1)	CT GROWN chef's salad LETTUCE (3/4 c), & MUSHROOMS, CABBAGE, GREEN PEPPER, CUKES, CAULIFLOWER (1/4 c ea) & TOMATO (1/2) cheese (2 oz), kidney beans (1/4 c), turkey (1 oz), dressing (2 T) Pumpernickel bread (1 sl) Low fat milk (1 c) PLUM (1)	Cheese grinder with roasted PEPPER, LETTUCE & TOMATO Raw CARROT (1) Brownie (1) Iced tea with lemon	Tuna (1/2 c) stuffed TOMATO (1) Sesame crackers (4) Swiss cheese (1 oz) Raw SUMMER SQUASH (1/2 c) Low fat milk (1 c)
DINNER			
Roast chicken (3 oz breast) Cooked BEETS (1/2 c) CABBAGE salad with CARROT, CUKES, GREEN PEPPER (1/2 c) Baked POTATO (1) Whole wheat bread (1 sl) Snack: Low fat milk (1 c) CARROT cake (1 sl)	Lean ground beef burger (4 oz) TOMATO (1/4) ROMAINE (2 leaves) Ketchup (1 T) Bun (1) SWEET CORN (2 ears) Low fat milk (1 c) CANTALOUPE (1/4)	Baked cod (3 oz) with herbs Steamed CAULIFLOWER (1/2 c) Brown rice (1/2 c) Pickled BEETS (1/2 c) Garlic bread (1 sl) Snack: Low fat milk (1 c) PLUM (1)	Linguini (1 c) Fresh PESTO sauce (1/2 c) Steamed BROCCOLI (1/2 c) with MUSHROOMS SWEET CORN (1 ear) RASPBERRIES (1/2 c) Ice cream (1/2 c) Snack: Low fat milk (1 c)

TABLE A-6. A PROPOSED MENU FOR OCTOBER EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce featured:
APPLES
BROCCOLI
CARROTS
CAULIFLOWER
EGGPLANT
LETTUCE
MUSHROOMS
ONIONS
PEARS
PEPPERS
POTATOES
TOMATOES,
WINTER SQUASH

c=cup, oz=ounce, sl=slice, sq=square, T=tablespoon, t=teaspoon

SUNDAY	MONDAY	TUESDAY
	BREAKFAST	
POTATO pancakes (3)	Hot oat cereal (iron fortified) (1 c)	Plain croissant (1)
APPLE JUICE (3/4 c)	PEAR (1)	Grapefruit juice (3/4 c)
Low fat milk (1 c)	Low fat milk (1 c)	Low fat milk (1 c)
Coffee, tea	Orange juice (1/2 c)	Coffee, tea
	Coffee, tea	
LUNCH		
Grilled cheese on rye sandwich (1) with TOMATO slice (1/4 c)	Fast food hamburger (1)	Meunster cheese (2 oz) in Pita bread (1/2)
	French fries (small)	GREEN PEPPER (1/2)
	Low fat milk (1 c)	Raw CAULIFLOWER (1/2 c)
CARROT (1)		
Oatmeal cookie (1)	Snack:	APPLE cake (1 sl)
Iced tea	APPLE (1)	Iced tea
DINNER		
Black bean soup with barley (1 c)	Fresh TOMATO & VEG sauce (GREEN PEPPER, MUSHROOM, ONION & EGGPLANT) (1/2 c)	Baked chicken (3-1/2 oz)
BROCCOLI & CAULIFLOWER au gratin (3/4 c)	Cheese manicotti (2)	Baked POTATO (1)
TOMATO salad (1/2 c)	Parmesan cheese (2 T)	Baked WINTER SQUASH (1/2 c)
Whole wheat bread (1 sl)	LETTUCE & ONION salad (1 c)	TOMATO & ONION slices
	Italian bread (1 sl)	Whole wheat bread (2 sl)
Snack:	Low fat milk (1 c)	Low fat milk (1 c)
Low fat milk (1 c)		
APPLE (1)		

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST Poached egg (1) Whole grain toast with broiled PEAR slices & cinnamon (1) Low fat milk (1 c) Coffee, tea	PUMPKIN bread (1 sl) Cottage cheese (1/2 c) Orange juice (3/4 c) Low fat milk (1 c) Coffee, tea	Cold flaked cereal (1 oz) Raisins (1/4 c) APPLE JUICE (3/4 c) Low fat milk (1 c) Coffee, tea	GREEN PEPPER & MUSHROOM Omelet (2 eggs, 1/4 PEPPER, 1/4 c MUSHROOMS) Whole wheat toast (1 sl) PEAR (1) Coffee, tea
LUNCH Pasta salad with tuna, BROCCOLI, CARROTS, GREEN PEPPER & ONION (1 c) Rye crackers (4) Low fat milk (1 c)	Turkey slices (2 oz) POTATO salad (1/2 c) Sesame crackers (4) Swiss cheese (1 oz) APPLE (1) Low fat milk (1 c)	Chili con carne (1 c) Bean burrito (1) Taco chips (1/2 c) Guacamole dip (1/4 c) Snack: English muffin (1/2) APPLE (1)	Garden salad (2 c) LETTUCE, GREEN PEPPER TOMATO, BROCCOLI, CARROT blue cheese dressing (2 T) Melted Swiss cheese (1 oz) Low fat milk (1 c)
DINNER EGGPLANT Parmesan (3/4 c) with MUSHROOMS (1/4 c) Dinner roll (1) Steamed CARROTS (1/2 c) Low fat milk (1 c) APPLE crisp (2" sq)	Stuffed PEPPER (1) with rice & ground beef & TOMATOES Steamed CAULIFLOWER (1/2 c) Oatmeal muffin (1) Low fat milk (1 c) PEAR (1) Snack: Whole wheat English muffin (1/2) Peanut butter (1 T)	Oriental scallops (1/2 c) with cooked MUSHROOMS Rice (3/4 c) BROCCOLI & cashew stir fry (1/2 c) Tea Fortune cookie	Homemade ONION soup (1 c) French bread (2 sl) Roast pork (3 oz) Baked POTATO (1) TOMATO salad (1/2 c) Snack: Low fat milk (1 c) APPLE (1)

TABLE A-7. A PROPOSED MENU FOR WINTER (NOVEMBER-APRIL) EMPHASIZING CONNECTICUT-GROWN FRESH PRODUCE.

Produce featured:
APPLES
CABBAGE,
CARROTS
CHARD
KALE
LEEKS
MAPLE SYRUP
MUSHROOMS
ONIONS
PEARS
POTATOES
PUMPKIN
SPROUTS
WINTER SQUASH

c=cup, oz=ounce, sl=slice, sq=square, T=tablespoon, t=teaspoon

SUNDAY	MONDAY	TUESDAY
BREAKFAST		
Oat & wheat waffles (2) Low fat yogurt (1/2 c) MAPLE SYRUP (2 T) APPLE JUICE (3/4 c) Coffee, tea	Shredded wheat (1) Banana (1) Low fat milk (1 c) Orange juice (3/4 c) Coffee, tea	Poached egg (1) PUMPKIN bread (1 1/2" sl) Grapefruit (1/2) Low fat milk (1 c) Coffee, tea
LUNCH		
Roast chicken or turkey (3 oz) Baked sweet potato (1) Fresh MUSHROOM saute (1/3 c) CABBAGE salad (1/2 c) Corn bread (2" sq) Low fat milk (1 c) Snack: APPLE (1)	Tuna salad sandwich on rye bread (1) APPLE (1) Low fat milk (1 c) Snack: Peanut butter (2 T) on rice cake (1)	Split pea soup with ONIONS & CARROTS (1-1/2 c) Oatmeal bread (2 sl) PEAR (1) Low fat milk (1 c)
DINNER		
Lasagna (3" square) Italian bread (1 sl) CARROT sticks (1 CARROT) Snack: Popcorn	Stir fry pork with ONIONS (1 c) Brown rice (1/2 c) Pineapple chunks (1/2 c) Tea Snack: Low fat milk (1 c) Walnuts (2 T)	Baked salmon loaf or meatloaf (3-4 oz) Steamed KALE (1/2 c) Baked POTATO (1) Low fat milk (1 c) Gingerbread (2" sq) Snack: APPLE (1) Sesame crackers (2)

WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
BREAKFAST			
Low fat yogurt (1 c) Cooked dried fruit (1/3 c) Wheat germ (1/4 c) Rye toast (1 sl) Orange juice (3/4 c) Coffee, tea	Hot wheat cereal (1 c) APPLESAUCE (1/2 c) Low fat milk (1 c) Grapefruit juice (1/2 c) Coffee, tea	Whole wheat toast (2 sl) Peanut butter (1 T) Banana (1) Low fat milk (1 c) Coffee, tea	Home fried sweet potato (1/2 c) Low fat cottage cheese with herbs (1/2 c) Rye toast (2 sl) Tomato juice (1/2 c) Coffee, tea
LUNCH			
Chicken salad in Pita bread with SPROUTS (1/2 pita, 1/2 c chicken salad, 1/2 c SPROUTS) CARROT sticks (1 carrot) APPLE cake (2" sq) Low fat milk (1 c) Snack: Tangerine (1)	Salad Bar Romaine, broccoli, CARROTS, ONIONS, CABBAGE, pasta salad SPROUTS, MUSHROOMS, blue cheese dressing (2 T) Whole grain roll (1) Low fat milk (1 c) Snack: PEAR (1)	Bean burrito (1) Rice (1/2 c) COLE SLAW (CABBAGE, CARROTS & ONIONS) (1/2 c) Low fat milk (1 c) Snack: Grapefruit (1/2)	Small hamburger with lettuce & tomato (1) Small vanilla shake (1) Snack: PEAR (1)
DINNER			
Baked lentil, rice & MUSHROOM casserole with tomato sauce & cheese (1 c) WINTER SQUASH muffin (1) CABBAGE salad (1/2 c) Baked custard (1/2 c) Mint tea Snack: Hot chocolate (1 c)	Macaroni & cheese (1 c) Steamed CHARD (2/3 c) CARROT & raisin salad (1/2 c) Indian pudding (1/2 c) APPLE JUICE (3/4 c) Snack: Low fat milk (1 c)	Baked fish (3 oz) with tarragon Baked POTATO (1) Baked WINTER SQUASH (1/2 c) French bread (1 sl) APPLE JUICE (3/4 c) Snack: Low fat milk (1 c) Oatmeal cookie (1)	LEEK, POTATO, & ONION soup (1 c) Baked stuffed CABBAGE (2 small) Steamed CARROTS (1/2 c) Whole wheat bread (2 sl) Low fat milk (1 c) Snack: PUMPKIN cookies (2)

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